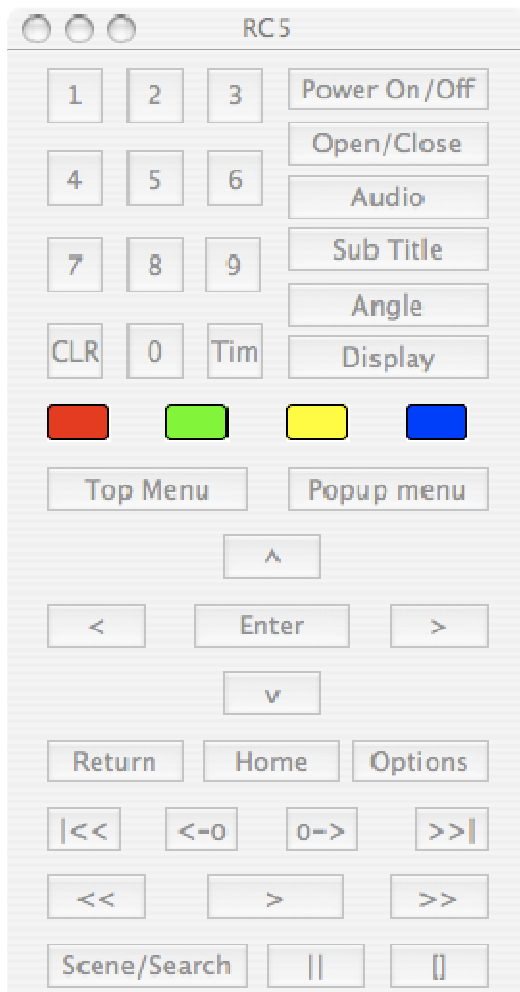# RC5 - RS422 Interface

RC5 is a generic term for the multiple infra red remote control protocols that exist. The RC5-RS422 interface is designed to provide a unified wired interface to the different Blue Ray/DVD players or in fact any device that has an optical interface.

RS-422 was chosen as the serial connection for the following reasons

1) The connection is balanced and suitable for use over long distances (up to 1Km)
2) Computers no longer have RS323 ports fitted as standard
3) CB Make a dual RS422 interface
4) The Sony P2 interface uses RS422

GUI
A software GUI replicates the infra red remote is developed for each machine as interfaced.

The GUI provides access to all the functions available on the machine. These commands are often machine specific, to enable others to design their own interface you can open a window and see the individual commands that are sent as each key is depressed (Appendix B)

Serial Protocol
The Serial protocol is based on the Sony P2 Protocol with extensions. See appendix A for details

Hardware Machine Interface
The machine interface can be wired or use a infra red connection. Machine modification is simple and requires two wires connected to the infra red receiver, to disable the infra red receiver an extra lead may be fitted and one lead of the infra red receptor is cut.

`

Appendix A Sony Protocol

DATA RATE 38.4
1 START, 8 DATA, ODD PARITY, 1 STOP

9 PIN D	DEVICE	CONTROLLER
1	GND	GND
2	TXA	RXA
3	RXB	TXB
4	RX GND	RX GROUND
5		
6	TX GND	TX GROUND
7	TXB	RXB
8	RXA	TXA
9	GND	GROUND

CMD FORMAT
BYTE 1 BITS 4-7   CMD-1 (Command/Status Group)
        BITS 0-3   Number of data bytes 0..15 (Excluding CMD1, CMD2, CHECKSUM)
BYTE 2   CMD-2 (Command/Status)
BYTE 3...N-1   Data bytes length specied by CMD1 LS nibble
BYTE N   CHECKSUM= SUM BYTE 1...N-1

The basic Sony transport commands are accepted as follows
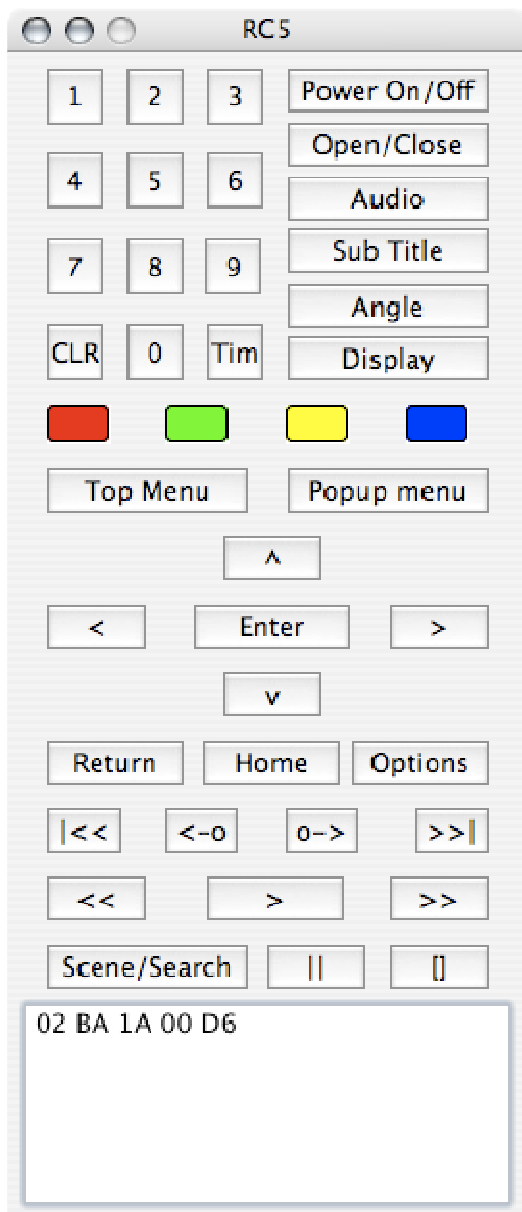Stop: 20 00 20
Play: 20 01 21
Record: 20 02 22
Eject: 20 0F 2F
Fast Fwd: 20 10 30
Fast Rvs   20 20 40

`

```
 ⊖ ⊖ ⊙        RC5

  1    2    3    Power On/Off
                 Open/Close
  4    5    6    Audio
                 Sub Title
  7    8    9    Angle
 CLR   0   Tim   Display

 [red] [green] [yellow] [blue]

   Top Menu        Popup menu

            ^
   <      Enter      >
            v

   Return   Home   Options
  |<<   <-o   o->    >>|
  <<        >        >>
 Scene/Search   ||    []

 02 BA 1A 00 D6
```

Appendix B

In the example to the left the key command data is 1A, the last byte is the check sum D6, these are the only two values that change when different keys are depressed.

Unfortuatly RS5 communication may only be used to send commands to the machine and not request status information from the machine.

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